

2. Note on the Capture (in London) of a rare Parasitic Fly, *Hammomyia (Hylephila) unilineata* Zett. By Lt.-Col. S. MONCKTON COPEMAN, F.R.S., M.D., F.R.C.P., F.Z.S.

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(Text-figure 1.)

The exceptional rarity of this fly, of which I have had the pleasure of presenting to the British Museum (Natural History) the only specimens in our national collection, affords reason for a record of its capture in considerable numbers in London (Primrose Hill) during the past two years, for some discussion of its nomenclature, and for a brief account of its seasonal prevalence and habits so far as they are at present known.

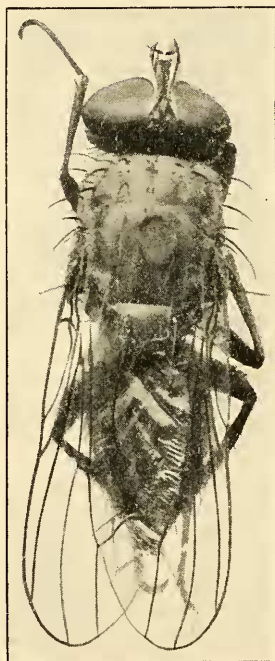
In a previous communication I have set out some facts as to a flourishing colony of a burrowing bee (*Andrena fulva*) on a localized area on the south-western slopes of Primrose Hill, which has been kept under observation over a period of six years, during the latter half of which period the number of individual burrows has, for reasons which were explained in my previous paper, increased to a considerable extent. It was while watching the operations of the bees on an outlying portion of this colony, on May 16, 1919, that, for the first time, I observed and obtained specimens (two in number) of a fly which, from its actions, which I studied carefully for some time, is apparently a parasite of the burrowing bee.

On the morning (about 10 A.M.) of this day, which was bright, without obvious breeze, I was lying motionless on the grass watching the bees leaving and returning to a collection of burrows on a small patch of bare earth, when my attention was attracted by a homeward-bound bee, which, on approaching its burrow, dived straight down into it, instead of, as usual, hovering around for several seconds before doing so. As it approached, I noticed that it was followed by a couple of flies, of a species unknown to me, which appeared for the moment to be as astonished as I was at its precipitate retreat into its burrow. After what looked like a fight with one another for a few moments over the surface of the ground, one of them followed the bee down into the hole, re-appearing almost immediately, and then again descending into the burrow, this time backwards. Meanwhile, the second fly remained on guard outside. When the first fly at length emerged head foremost, both of the flies were eventually trapped in a match-box, a net not being available at the time. But unfortunately one of them managed to escape before they could be taken home and killed. The remaining specimen was despatched at once to Major E. E. Austen, D.S.O., at the British Museum (Natural History), with a request for its identification, as the species was unknown to me. Under the circumstances, it may

be of interest to quote from Major Austen's reply, of May 17th, 1919, as follows:—

“The fly enclosed with your letter is a most interesting thing, and I am more than sorry that I have been unable to name it for you The species of the genus *Miltogramma* (fam. Tachinidæ) and its nearest allies behave exactly as you described, and on more than one occasion I have watched one of these flies stalking

Text-figure 1.



Hamomyia (Hylephila) unilineata Zett., ♀.

(The mark in the centre of the thorax is due to the fly having been pinned before the photograph was taken.)

Magnified $\times 10$.

a solitary bee as a stoat does a rabbit—moving when the bee moved, stopping when the bee stopped, and so on. Judge of my surprise, therefore, when, on opening the box, I found an insect such as, to the best of my belief, in nearly thirty years' experience of Diptera, I have never seen before! The species undoubtedly belongs to the *Anthomyidæ*—not to the Tachinidæ,—but is aberrant in more than one respect. It is not represented either in our own collection or in the series presented by the late

Mr. Verrall (the result of some fifty years' collecting). My colleague, who works at Diptera, does not know it, and I have spent some hours . . . trying to work it out with books etc., but without success. It is a most surprising thing, especially in view of the locality. I hope that you will be able to secure more specimens, and of both sexes."

Mr. Austen, at first, was of the opinion that the sex, not only of this particular fly, but also of each of a number of similar specimens that I was subsequently able to send him, was *male*, but when, later on, at the suggestion of Mr. Collin, who had learnt of my find through Professor Poulton (to whom I had given some specimens for the Hope Collection at Oxford), one of the flies was dissected, leading to the discovery of a perfect egg, it became obvious that the flies that had been captured must be females. And it is a curious and interesting fact that among about fifty specimens of this fly which have been caught (all in the same locality) up to the end of their seasonal prevalence in the early part of June of the present year (1920) not a single individual of the male sex has been secured. I learned, however, from Mr. Collin that he now possesses three specimens of the male insect—two taken by the Rev. A. E. Eaton at Seaton (Devon) and the third taken by himself at Long Sutton in Hampshire, all in May 1919, curiously enough the same year and month in which the first specimens (females) were found by myself on Primrose Hill. Mr. Collin further informed me that he possesses female specimens from the following localities:—"Newmarket, Shoeburyness, and Dunsford (all June captures); Cuckmere (Sussex) taken in May; and a specimen taken by Col. Yerbury at Charlton in April.

The difficulty as to the sex of my first captures arose from the masculine character of the approximation of the eyes, which is the cause of the very narrow "frons," which, however, appears to be peculiar to, and distinctive of, the female in this group of Anthomyids—a feature which is well shown in the photograph, and which, so far as I am aware, has not previously been illustrated.

NOMENCLATURE.—As stated above, Major Austen and his colleague in the Diptera department of the British Museum (Natural History) were unable, at first, to identify this fly, but on calling there on May 28th, 1919, with some further captures, Major Austen informed me that Dr. P. H. Grimshaw of the Royal Scottish Museum, who had recently paid him a visit, had stated, when the specimens were shown to him, that he recognised the fly, identifying it as *Chortophila buccata* Fallén, although the species was not (as Major Austen understood him) included in the Scottish collection.

Shortly afterwards Professor Poulton arranged with Major Austen that Mr. Collin should be afforded opportunity of examining the specimens I had presented to the Museum, for the reason that, as Mr. Collin informed me, his uncle, the late Mr. Verrall, had suggested that a fly, apparently identical

with mine, should be known as *Hammomyia unilineata* Zett. rather than *H. (Chortophila) buccata* Fallén.

Subsequently Mr. Collin wrote to me that he possessed several continental specimens of *H. buccata* Fln., including a pair so named by Zetterstedt himself, and that he was of opinion that these were abundantly distinct from the British species, which is undoubtedly *Hammomyia (Hylephila) unilineata* Zett. Furthermore, he kindly directed attention to the fact that in describing *unilineata* Zetterstedt wrote "Feminæ ad nidis Andrenarum inventæ, in quarum larvis larvæ hujus speciei Ariciæ verisimiliter parasitæ vivunt observante D. Professore Wahlberg." Apparently, therefore, *buccata* Fallén requires confirmation so far as our British fauna is concerned, as Mr. Collin is convinced that he has never seen a British specimen of the true *buccata*.

SEASONAL PREVALENCE.—As stated above, my first specimens of this fly were captured on Primrose Hill on 15th May, 1919. On the same circumscribed area of ground I caught ten more specimens on May 19th, ten on May 20th, and seven on May 21st. Then, after an absence from town of several days, a further seven flies were caught on May 27th and three on May 29th—at which date I had again to leave home for about a fortnight. Just before my return the fine weather gave place to rain, accompanied by a considerable fall in temperature, with the result that, subsequently, neither bees nor flies were to be found, notwithstanding careful search on several successive days.

It may be mentioned that, in 1919, *Andrena* bees were first seen on May 6th, a warm and sunny day, when a number of males, which always emerge before the females, were flying about; while females were not found, with the exception of one or two solitary specimens, until several days later. So that, as might be expected in view of what is known as to the parasitism of the fly in question, it is obvious that the seasonal prevalence of the female of both fly and bee tallies closely.

In consequence, doubtless, of the abnormal meteorological conditions during the present year (1920), both bees and flies appeared at an earlier date than in 1919, the first flies, three in number, having been obtained on May 11th. Careful search was made for *male* specimens of the fly, but again without success. By the end of May both bees and flies had disappeared.

It will be noted that, with some exceptions, the specimens of the fly in Mr. Collin's collection were captured in the month of May—the month during the latter half of which, as my observations on Primrose Hill, extending over a period of several years, have shown, the female of the bee *Andrena fulva* is more particularly prevalent.